

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A device for mixing and distributing a liquid phase and a gas phase inside a vertical reactor having an outer wall, said vertical reactor being upstream of a granular bed or between two successive granular beds, said device comprising:

- a substantially horizontal plate (20) covering the entire cross section of the reactor and supporting a plurality of substantially vertical conduits (40) comprising an upper end (43) communicating with the portion of the reactor located above the plate (20) and a lower end (21) communicating with the portion of the reactor located below the plate (20) said plurality of substantially vertical conduits defining a zone spaced away from the outer wall of the reactor;
- said conduits comprising lateral orifices (42) at different levels disposed along their vertical wall and allowing the gas phase and the liquid phase to be introduced into the conduits at least partially in a separated manner;
- said device comprising a substantially vertical inner wall (30) located in the space comprised between the wall of the reactor and the zone occupied by the conduits, and defining with said outer wall an annular zone (28) for receiving at least the liquid phase from outside the reactor and which communicates with the central portion of the plate (20),in particular by means of defining lower cross sections for flow (32).

Claim 2 (currently amended): A device according to claim 1, in which the distance separating the means defining lower cross sections for flow (32) and the lowest lateral orifices (42) of the conduits (40) is more than 20 mm, the means defining the lower cross sections for flow (32) being disposed below the lateral orifices (42).

Claim 3 (currently amended): A device according to claim 1, comprising a plurality of means defining lower cross sections for flow entirely or mainly disposed in the lower half of the inner wall (30).

Claim 4 (currently amended): A device according to claim 1, in which the dimensions of the lower means defining the cross sections for flow (32) allow the liquid level in the annular zone to remain below the overflow level corresponding to the upper portion of the inner wall (30).

Claim 5 (currently amended): A device according to claim 1, in which the dimensions of the means defining the lower cross sections for flow to allow the flow rate of the liquid phase through said means defining lower cross sections of flow (32) is in the range of 0.5 to 5 m/s.

Claim 6 (previously presented): A device according to claim 1, in which the width of the annular zone (28) is less than 5% of the diameter of the reactor.

Claim 7 (previously presented): A device according to claim 1, in which the inner wall (30) is higher than the level of the highest lateral orifices (42) and lower than the level of the upper end (43) of the conduits (40).

Claim 8 (previously presented): A device according to claim 1, in which the upper portion of the annular zone (28) is closed by a gas-tight top (35).

Claim 9 (previously presented): A chemical reactor comprising a device according to claim 1, said reactor comprising one or more fixed beds at least one of which is supplied with a downflowing co-current of a gas phase and a liquid phase, the volume ratio between the gas phase and the liquid phase being in the range of 1 to 400.

Claim 10 (currently amended): A process for the comprising providing at least one reactor according to claim 9 and conducting a selective hydrogenation of hydrocarbons containing 2 to 7 carbon atoms

in said at least one reactor ~~according to claim 9.~~

Claim 11 (currently amended): A process ~~for the comprising providing at least one reactor according to claim 9 and conducting a hydrotreatment of hydrocarbons in~~ said at least one reactor ~~according to claim 9.~~

Claim 12 (previously presented): A device according to claim 2, wherein said distance is in the range of 100 to 300 mm.

Claim 13 (previously presented): A device according to claim 6, wherein said width is less than 2% of the diameter of the reactor.

Claim 14 (previously presented): A chemical reactor according to claim 9, wherein the volume ratio is in the range of 1 to 100.